

REMARKS

A Final Office Action was mailed in the above-captioned application on March 17, 2006. Claims 31-36, 45-47, 49, 50, and 53 were pending and were rejected. A Notice of Appeal was lodged on September 15, 2006.

This Request for Continued Examination and accompanying Amendment and Remarks is presented responsive to the following: the Final Office Action issued March 17, 2006; the interview between Applicant, Applicants' representative Barry Swanson, Examiner Kenneth Horlick and Quality Assurance Specialist Christopher Low held on January 9, 2007; and the Examiner's and Quality Assurance Specialist's February 22nd, 2007 comments and feedback on Applicants' February 7th, 2007 proposed claims document. Applicants thank the Examiner and Quality Assurance Specialist for their generosity in speaking with Applicant and Applicants' representative at the interview as well as their generosity in taking the time to review and comment on Applicants' draft claims.

Applicants herein present an amended claim set based upon the sample claim received from Examiner Horlick and Quality Assurance Specialist Low, as well as their comments regarding Applicants' February 7, 2007 proposed claims.

Reconsideration of the previous rejections, in light of Applicants' herein amendments and remarks, is respectfully requested.

The Rejection under 35 U.S.C. § 112, first paragraph

The Examiner has rejected claims 31-36, 45-47, 49, 50, and 53 under 35 U.S.C. § 112, first paragraph as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, in regards to the recitation of a genus encompassing nucleic acids/ polypeptides having at least 75% sequence identity to SEQ ID NO:4-6, 33-36, and 91, where the recited nucleic acids/polypeptides also have the property of being capable of increasing the yield in a plant, the Examiner contends that there is no support in the specification for the "increasing yield" functional language. The Examiner contends that the Specification does not provide direct and specific correlation of the claimed function (increasing yield of a plant) with the nucleic acid/protein.

Compliance with the enablement requirement of 35 U.S.C. § 112, first paragraph, is presumed with the burden falling on the Examiner to give reasons for a conclusion that there is a lack of correlation with the functional language recited and the disclosed or claimed method of use. MPEP 2164.02. There is a body of case law stating that if the art is such that a particular model is recognized as correlating to a specific condition, then it should be accepted as correlating by the Examiner. The key question is whether one of skill in the art would accept the model as reasonably correlating to the condition. MPEP 2164.02, *citing In re Brana*, 51 F.3d 1560, 1566 (Fed. Cir. 1995). A rigorous or exact correlation is not required. MPEP 2164.02, *citing Cross v. Iizuka*, 753 F.2d 1040, 1050 (Fed. Cir. 1985).

Applicants, while disagreeing with the Examiner's rejection, particularly with respect to the Examiner's contention that the written description presented by Applicants does not show the claimed effect of increasing yield for the gene EG1117, nevertheless have made several amendments to the claims, without prejudice or disclaimer of the subject matter therein, for the purposes of expediting allowance of the instant application only. Applicants specifically disclaim any narrowing of claim scope engendered by the instant amendments for the instant application, for any present or future application having the instant application as a parent application.

As a first amendment, Applicants have amended all of the claims referring to % identity to recite polynucleotides/polypeptides having **95% identity** to the named sequence identifier numbers. Support for these amendments can be found in the Specification, for example, at page 58, lines 17-24.

By way of response to the specific rejection regarding Applicants' recital of the functional language "capable of increasing yield in a plant", Applicants have removed this recital of functional language and replaced with new functional language suggested by the Examiner and Quality Assurance Specialist. Specifically, it was suggested that the language "wherein the presence of said isolated polynucleotide in a plant of the genus *Oryza* is a marker of increased yield" may satisfy U.S.C. § 112, first and second paragraphs. Accordingly, Applicants have amended the relevant claims to recite language very similar to that suggested by the Examiner and Quality Assurance Specialist. The suggested language was modified slightly for greater clarity and to add the genus *Zea* (corn), as SEQ ID NOs:33, 34, 35, and 36 are corn-derived EG307 sequences.

Support for the amendment can be found throughout the Specification. Applicant states on page 29, lines 16-17, “[f]rom the combination of evolutionarily significant K_A/K_S value and mapping data, one of skill in the art can reasonably conclude that . . . EG307 is a yield-related gene.” Further, Applicant summarizes the data leading to his conclusion at Specification, page 29, lines 4-15, where he reports K_A/K_S values for EG307 among different rice strains (shown in Table 1 of the instant specification) showing evolutionarily significant changes for this gene, along with mapping data showing close association of EG307 with a gene known to increase yield.

Increased yield is known in the art as one of the primary phenotypic differences between domesticated and ancestral strains of rice and corn. Additionally, it is well-accepted in the art that where sequences are very tightly linked, then the two sequences may be associated with each other. In other words, the two sequences may be involved in regulating the phenotypic trait. Example 12 teaches that EG307 lies on the same BAC as marker RZ672, a marker associated with a QTL for 1000 grain weight residing on chromosome 3. Here, the close association of EG307 with a gene known to increase yield leads one of skill in the art to conclude that these genes are likely involved in regulating the trait of increased yield. That conclusion is strengthened by the evolutionary analysis showing that EG307 has had significant positive selection in domestic rice as opposed to ancestral rice. Further, analysis shows that for two independent domestications, i.e. corn (in the New World) and rice (Old World), the gene EG307 was similarly modified in each species, a pattern that is unlikely to have occurred by chance, and is evidence of human selection for increased yield. See Example 13.

Additionally, Applicants respectfully direct the Examiner's attention to the Declaration under 37 CFR § 1.132 presented herewith. In this Declaration, Applicants present an association analysis in rice showing the highest associations, i.e., R^2 values for the gene EG307 are for yield-related traits: 31% for “whole mill” (a measure of the ultimate yield of rice grains), 26% for “grain yield, lbs”, and 26% for “grain weight”. R^2 values indicate the amount of variation in a particular trait that can be explained by the genetic locus being analyzed.

Applicant submits that based on these teachings, one of skill in the art would conclude that EG307 is positively associated with yield in plants, i.e., is “a marker of increased yield in a plant of the genus *Oryza* [rice] or *Zea* [corn]”.


Accordingly, Applicant submits that there is adequate written description of the subject matter, in that the specification contains subject matter which was described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor had possession of the claimed invention. Withdrawal of this rejection is respectfully requested.

Closing Remarks

Applicant believes that the pending claims are in condition for allowance. The undersigned hereby authorizes the charge of any fees created by the filing of this document or any deficiency of fees submitted herewith to be charged to deposit account No. 19-5117. If it would be helpful to obtain favorable consideration of this case, the Examiner is encouraged to call and discuss this case with the undersigned.

Respectfully submitted,

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